Space Weather Forecast

Issued on Tuesday, 24 May 2022 at 01:21 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of moderate-class X-ray flares and R1-R2 radio blackouts throughout the forecast period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with only Common-class flare activity through the last 24 hours. There are two large and complex regions in the northwest quadrant, with these presenting the highest flare risk. Six further smaller regions are considered to be benign. Meanwhile, a Common-class from one of the complex regions in the northwest has produced a coronal mass ejection (CME), which has yet to be analysed for any Earth-directed component. Currently, no Earth-directed CMEs have been observed on available imagery in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind has been elevated due to a fast solar wind, which are starting decline due to the waning effects of a coronal hole. Total magnetic field strength of the solar wind was weak and stable, with the important north-south component varying weakly. Total geomagnetic activity has been Quiet throughout.

Energetic Particles / Solar Radiation: No solar radiation storms were seen.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be mainly Low, but with a chance of Moderate flare activity and a very slight chance of Strong flares, mainly due to the two large regions in the northwest quadrant.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are currently expected. However, the aforementioned CME is yet to be analysed for any Earth-directed component - pending analyse.

Solar winds are expected to decline through the next couple days due to a declining fast wind. Further elevated winds are then likely on 26 and 27 May, due to a further elevated fast solar wind. Geomagnetic activity is expected to be mainly Quiet with isolated Unsettled spells through 24 and 25 May. There is then a very slight chance of G1/Minor Storms on 26 and 27 May.

Energetic Particles / Solar Radiation: No solar radiation storms are expected, but with a daily slight chance of flux reaching S1, should any notable flares occur.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	10	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	40	40	40	40
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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